



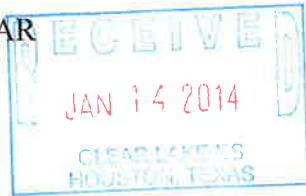
# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

1875 Century Boulevard  
Atlanta, Georgia 30345

In Reply Refer To:  
FWS/R4/DH NRDAR

JAN 13 2014



### Memorandum

To: Field Supervisor, Clear Lake Ecological Services Field Office

From: Deputy Deepwater Horizon Department of the Interior Natural Resource Damage Assessment and Restoration (NRDAR) Case Manager *Debra L. McCall*

Subject: Informal Consultation Request for the Proposed Galveston Island State Park Beach Re-Development, Texas

As you are no doubt aware, on or about April 20, 2010, the mobile offshore drilling unit *Deepwater Horizon* experienced an explosion, leading to a fire and its subsequent sinking in the Gulf of Mexico (the Gulf). These events resulted in the discharge of millions of barrels of oil into the Gulf over a period of 87 days. In addition, various response actions were undertaken in an attempt to minimize impacts from spilled oil. These events are hereafter collectively referred to as the Oil Spill.

The Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (the Service) and other Bureaus, is a designated natural resource trustee agency authorized by the Oil Pollution Act of 1990 (OPA) and other applicable federal laws to assess and assert a natural resource damages claim for this Oil Spill. DOI is only one of several Trustees, including agencies of the state of Texas, so authorized. Consistent with their federal and state authorities, the Trustees are investigating the resource injuries and losses that occurred as a result of the Oil Spill and have initiated restoration planning to identify the actions that will be needed or appropriate to restore injured resources and to make the public whole for the injuries and losses that occurred. This process is known as a Natural Resource Damage Assessment (NRDA).

On April 20, 2011, DOI, the National Oceanic and Atmospheric Administration and the Trustees for the five Gulf states affected by the Oil Spill entered into an agreement with BP, a responsible party for the Oil Spill, under which BP agreed to provide \$1 billion for early restoration projects in the Gulf to address injuries to natural resources caused by the Oil Spill. The subject project is being evaluated by the Trustees as a potential early restoration project. The early restoration project has been proposed in a draft early restoration plan that was released for public comment and review on December 6, 2013. If the Trustees select the project after consideration of public comment and a stipulated agreement is reached with BP, the early restoration project will be implemented by the by the state of Texas. DOI, acting through the Service, will be a co-Trustee for the project, if it is selected and implemented.

The above facts lead us to the conclusion that consultation under Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), is required for the proposed early restoration project and we wish to engage in such consultation. Accordingly, we have reviewed the proposed Galveston Island State Park Beach Re-Development, Texas, for potential impacts to listed, candidate, and proposed species and designated and proposed critical habitats in accordance with section 7 of the ESA. We determined the proposed project may affect, but is not likely to adversely affect, piping plover or red knot (if listed). We have provided our analysis in the attached Biological Evaluation. No proposed or designated critical habitat is within the action area; therefore, none will be adversely modified or destroyed. We have also reviewed the proposed project for impacts to bald eagles and migratory birds in accordance with the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703–712), respectively. National Marine Fisheries Service has concurred with a No Effect determination for species under their jurisdiction as all work will be conducted above the high tide line.

We request your review of and concurrence/conference with the attached intra-Service Section 7 Biological Evaluation form describing the proposed project, potential effects, conservation measures and justifications for our determinations. If you have questions or concerns regarding this request for consultation, please contact Holly Herod, Fish and Wildlife Biologist, at 404-679-7089 or [holly\\_herod@fws.gov](mailto:holly_herod@fws.gov).

Attachment

**SOUTHEAST REGION  
INTRA-SERVICE SECTION 7  
BIOLOGICAL EVALUATION FORM**

**Originating Person:** Angela Schrift (TPWD); Holly Herod (DOI/USFWS)  
**Telephone Number:** Angela Schrift: 512-389-8755; Holly Herod:404-679-7089  
**E-Mail:** [Angela.Schrift@tpwd.texas.gov](mailto:Angela.Schrift@tpwd.texas.gov); [holly\\_herod@fws.gov](mailto:holly_herod@fws.gov)  
**Date:** December 31, 2013

**PROJECT NAME (Grant Title/Number):** Galveston Island State Park Beach Re-Development

**I. Service Program:**

- ☒ **NRDAR**
- ☐ **Ecological Services**
- ☐ **Federal Aid**
  - ☐ **Clean Vessel Act**
  - ☐ **Coastal Wetlands**
  - ☐ **Endangered Species Section 6**
  - ☐ **Partners for Fish and Wildlife**
  - ☐ **Sport Fish Restoration**
  - ☐ **Wildlife Restoration**
- ☐ **Fisheries**
- ☐ **Refuges/Wildlife**

**II. State/Agency:** Texas Parks and Wildlife Department (TPWD)

**III. Station Name:** DOI Deepwater Horizon Case Management Team, USFWS Southeast Regional Office, Atlanta, Georgia 30345

**IV. Description of Proposed Action (attach additional pages as needed):**

The proposed Galveston Island State Park Project will restore infrastructure for recreational facilities to enhance recreational access and opportunities on the Texas coast. Specifically, Texas Parks and Wildlife Department proposes to build multi-use campsites, tent campsites, dune access boardwalks, an equestrian trail head, and restroom and shower facilities on the beach side of Galveston Island State Park (GISP) (Figure 1). Historically, the Park provided camping facilities and associated amenities that were accessible to day- and overnight-visitors. However, in 2008 Hurricane Ike caused severe devastation and destroyed much of the Park's infrastructure, much of which has still not been repaired (Figure 2). The Park lost approximately 80 feet of beach and two-thirds of its camping facilities. Utilities and structures were destroyed, and the entire Park was inundated with salt water. To guide the restoration process, TPWD developed the Galveston Island State Park Master Plan in 2011 to identify appropriate restoration efforts for the Park (TPWD 2011).



Figure 1. Location of proposed developments within Galveston Island State Park.





Figure 2. Destruction caused by Hurricane Ike at Galveston Island State Park.

Developments proposed by this Project are consistent with the Master Plan and will help improve and enhance recreational opportunities along the Texas coast. At the campsite facilities, comfort stations with associated parking spots are paired with rinse showers. The proposed beach access boardwalks will provide access to the beach from multi-use campsites and tent campsite areas across the dunes. The multi-use campsites are currently designed to be RV accessible and will be equipped with water and electric hook-ups and a dump station. Each site would also have a picnic shelter and grill within close proximity. Native trees and shrubs will be used to provide a screen between the campsites. The location of the campsites has been designed to account for future dune migration. Additionally, this project proposes to build multiple tent campsites with associated amenities, which may include boardwalks and parking spaces. An equestrian trail head has been proposed to include limited trailer parking and access to horse corral pens and access to the beach. There are no equestrian facilities located in the Park at this time though horses can access the beach from adjacent city-owned access areas on either end of the Park. Horses are allowed on the beach from November 1 through February 28 and they will access the beach via a boardwalk. The clustering of the improvements towards the south side of the Park, concentrates visitors to a specific area of the beach, thereby reducing the chances for any adverse effects to habitat and wildlife. Kemp's Ridley sea turtles, which are daytime nesters, are the only sea turtle known to nest on Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest

detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the Kemp's Ridley nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation. TPWD currently uses only downward facing lights in new construction. Other lights will be directed away from the beach. Work hours in general will be from 7am until 6pm so additional lighting will not be necessary

### **Project Location**

Galveston Island State Park is a 2,000-acre park in the middle of Galveston Island, southwest of the City of Galveston and northeast of and adjacent to the community of Jamaica Beach in Galveston County, Texas (Figure 3). Galveston Island is part of a series of barrier islands and bay-lagoon systems that separate much of the Texas coastal mainland from the Gulf of Mexico. Most undeveloped parts of the island are characterized by coastal prairies and marshlands with some areas containing coastal dunes. Because barrier islands serve as transition zones between land and ocean, they support a variety of distinct eco-regions, including beaches, prairies and wetlands. Each supports a diverse array of life. The barrier island also protects the mainland from storms, while the lagoons, bay and salt marshes serve crucial functions in the life cycles of many fish, birds, and other wildlife.

The proposed Project is located entirely within Galveston Island State Park, which is bound by 13 Mile Road to the east, Jolly Roger Road to the west, Gulf of Mexico to the south, and West Bay to the north. Residential and commercial properties occur on both sides of Galveston Island State Park with the Village of Jamaica Beach serving as a primary residential area to the west of the site. Within the Park, the proposed campground area is bordered to the northwest by Farm to Market 3005.

Galveston Island State Park contains a mosaic of coastal habitats that host a variety of wildlife and is visited by birds from throughout the eastern hemisphere during the spring and fall migration seasons. Wading and shore birds, mottled and mallard ducks, raccoons, armadillos and marsh rabbits are found in the Park, which is ideal for wildlife observation and photography. Beach or surf fishing for spotted seatrout, sandtrout, redfish, black drum, croaker and flounder is also popular.

The Project area is located seaward of Farm to Market 3005 within the coastal prairie and beach/dune system that abuts the Gulf shore. Dunes approximately 80 to 120 feet in width were lost during Hurricane Ike, but some recovery of the frontal dune ridge has occurred due to the implementation of dune restoration methods including sand-fencing.

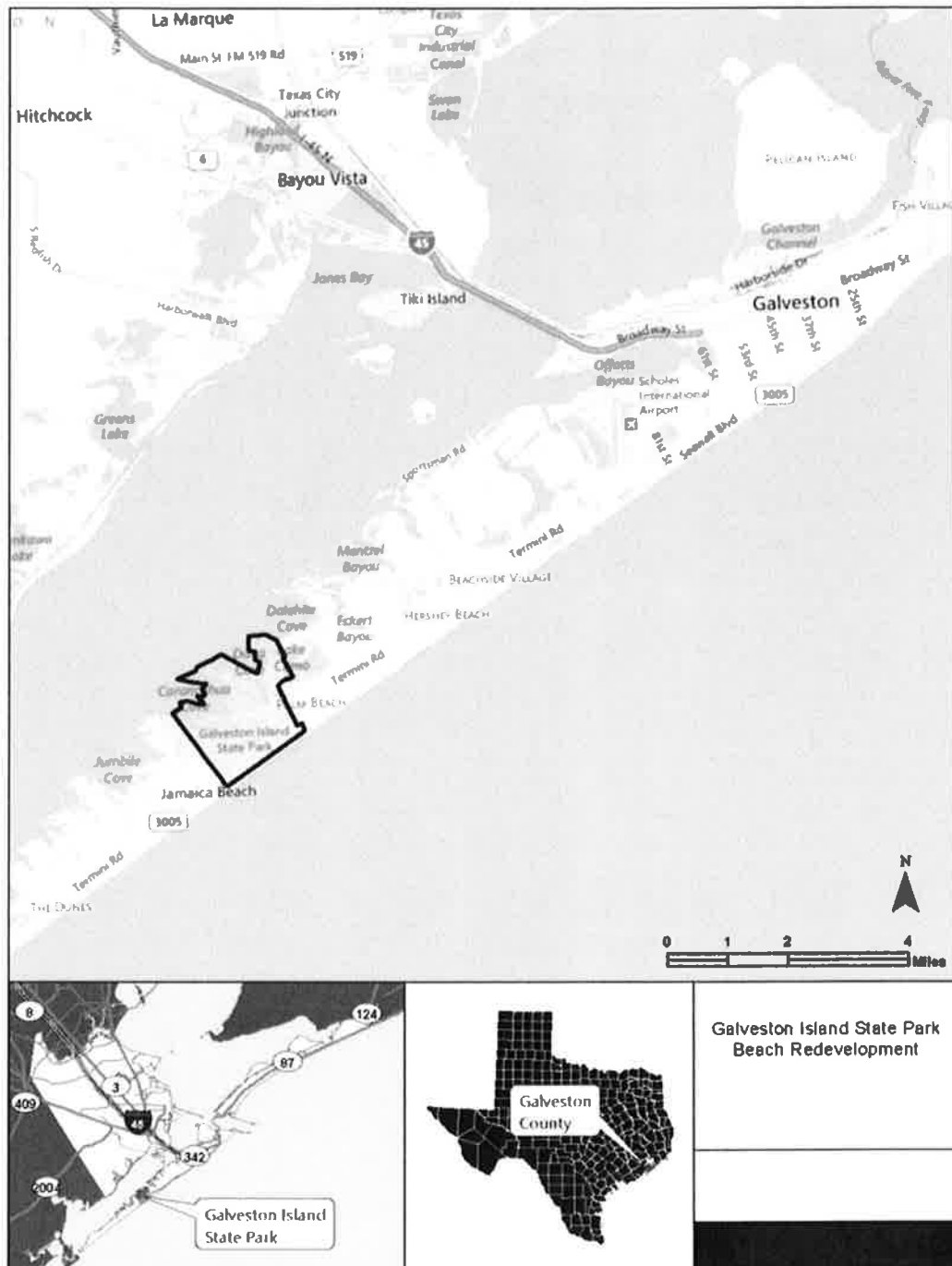


Figure 3. Location of Galveston Island State Park.

### Construction and Installation

After Hurricane Ike, TPWD worked with the Texas Department of Transportation to remove debris. Prior to the debris cleanup Project, TPWD consulted with Texas Historical Commission (THC) under section 106, and THC concurred with the cleanup plan. Large heavy equipment was used to bulldoze, scrape, and level the beach, pushing all asphalt, concrete, posts, and other park structures into debris piles. New plumbing, lift stations, electric and water hookups were installed. All of these efforts were put into the exact same footprint as earlier efforts. Minimal re-vegetation activity has already occurred within the proposed camping loop area.

This Project is in the design phase and adjustments will be made as the construction documents are finalized. This Project proposes to construct multi-use campsites, tent campsites, dune access boardwalks, an equestrian trail head, and restroom and shower facilities on the beach side of the Park (Figure 4). At the campsite facilities, restrooms with associated parking spots are paired with rinse showers. Two comfort stations and three full service restrooms are planned. The dune access boardwalks (Figure 5) will provide access to the beach from multi-use campsites and tent campsite areas across the dunes. The multi-use campsites are currently designed to be RV accessible and equipped with water and electric hook-ups and a dump station (Figure 6). Each site would also have a picnic shelter and grill within close proximity. Native trees and shrubs will be planted to provide a screen between the campsites. This Project also proposes to build multiple tent campsites with associated amenities, which may include boardwalks and parking spaces. An equestrian trail head will include limited trailer parking and access to horse corral pens as well as the beach. There will be four corrals with eight overnight equestrian trailer parking spaces. All facilities and boardwalks will meet Texas Accessibility Standards and Americans with Disabilities Act guidelines as well as the standards in the Dune Protection and Improvement Manual for the Texas Gulf Coast (Texas General Land Office 2005; [http://www.glo.texas.gov/what-we-do/caring-for-the-coast/\\_publications/DuneManual.pdf](http://www.glo.texas.gov/what-we-do/caring-for-the-coast/_publications/DuneManual.pdf)).

The proposed improvements will occur in an area where existing campgrounds are being used. These areas may close during construction to prevent user conflicts.



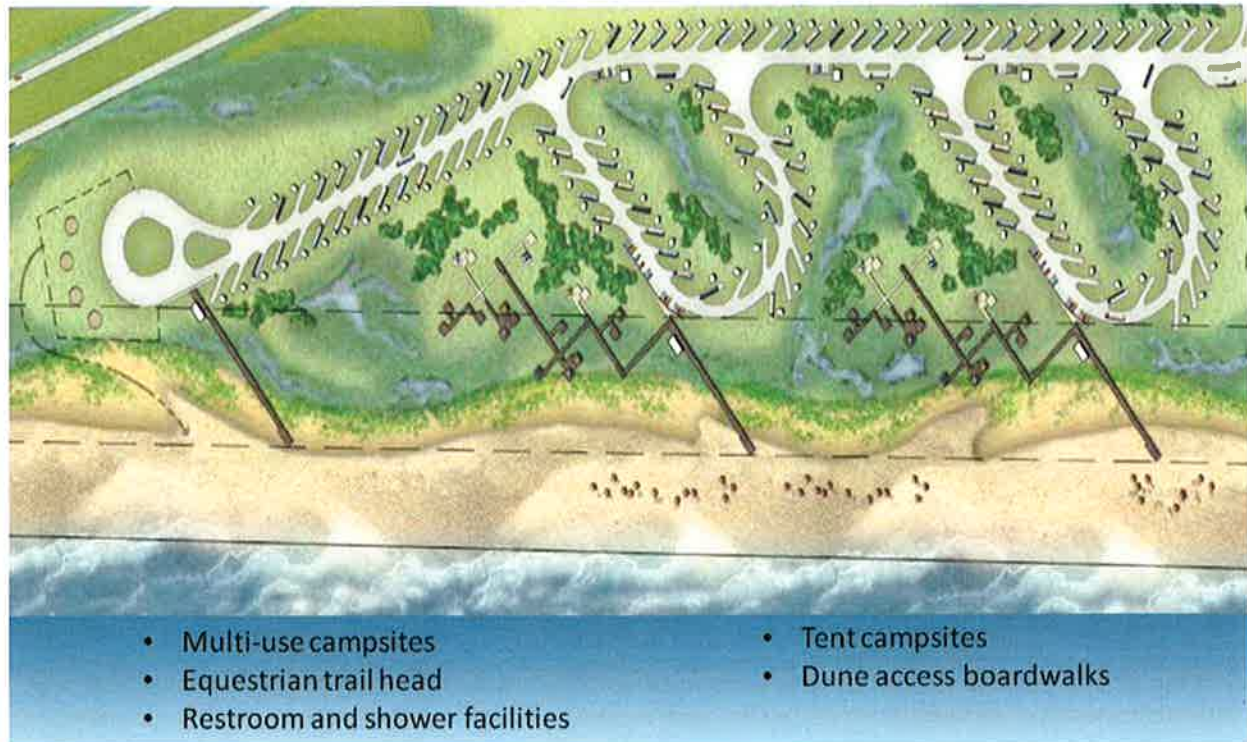


Figure 4. Artist rendering of Galveston Island State Park beach development highlighting camping loops, tent platforms and beach access boardwalks.



Figure 5. Example of proposed boardwalks.



Figure 6. Example of multi-use campsites.

#### Grading and Ground Disturbance

The grading and ground disturbance discussed below includes all portions of the Project including the items such as roads that are not funded with NRDA money. The campground currently present suffered severe damage during recent hurricanes. The remains of concrete picnic shelters, restrooms, and the visitor's center in the beach area will be removed. This Project is replacing the current campground which has 8.77 acres of impervious cover. The improvements proposed herein will require grading within the Project area which has a footprint of 37 acres. It has been anticipated that there will be approximately 15.61 acres of impervious surface cover from this Project. For additional details and maps, see the Galveston Island State Park Individual Permit.

#### Mobilization, Staging, and Stockpiling

Temporary staging areas for material, supplies, and equipment during construction would be located within disturbed areas of the former campground and adjacent parking lots on Park property. Heavy equipment such as large excavators, dump trucks, bulldozers, graders, pavers, concrete trucks, and semi-

trailers may be used during construction. Equipment will be determined by the contractor.

### Construction Schedule

Construction is anticipated to take approximately 19 months to complete unless severe weather delays construction. Work hours, in general, will be during daylight hours for 5-6 days per week. Construction of dune walkovers will only occur from October 2 to March 31 to avoid sea turtle nesting season.

### **V. Pertinent Species and Habitat:**

The Project area contains beach, dune, and grassland prairie habitats that have interspersed wetlands. The grassland prairie contains mixed shrub and grass sites and/or woody plant dominated areas. Although there are many plant species in the area, the Park was historically over grazed and still has not fully recovered. The beach/dune habitat is constantly changing as a result of sand transport from winds and storms. The Project area is located on a barrier islands along the Gulf Coast, with Seaoats-Seacoast Bluestem Grassland distributed from high tide mark to leeward marshes on sandy coastal barrier islands. Some commonly associated plants within this area include: croton, single-spike paspalum, Pan American balsam scale, flat sedge, sea purslane and cenicilla, bulrush, beach morning glory, goatfoot morning glory, sea rocket, and lime pricklyash. Wading and shore birds, mottled and mallard ducks, raccoons, armadillos and marsh rabbits are found in the Park.

The management of Galveston Island State Park natural resources includes restoring native plant communities to their Pre-European settlement condition. The Park had been heavily grazed for many years prior to being purchased by the State and this caused the tall-grass prairie native to the site to become depauperate of species including important dominant grasses such as little bluestem.

- A.** Include species/habitat occurrence map: Attach a map that identifies species locations with the project area.

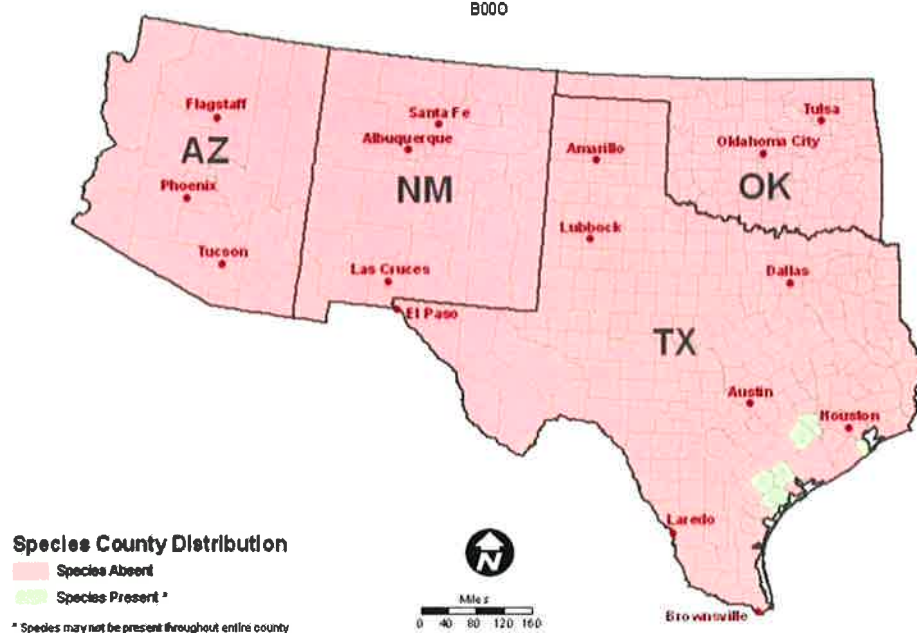
See Figures 1 – 4 depicting the project area in Section IV. Species distribution maps for species that are federally-listed and may be present in Galveston County are below. Distribution maps were downloaded from the USFWS Ecological Services webpage for Region 2 on 19 April 2013 ([http://www.fws.gov/southwest/es/ES\\_ListSpecies.cfm](http://www.fws.gov/southwest/es/ES_ListSpecies.cfm)). There is no map for the red wolf since it has been extirpated in Texas. Additionally, the map for Kemp's Ridley sea turtle would not download properly from the USFWS webpage. However, the distribution for Kemp's ridley in Texas is the same as the green sea turtle.



## Attwater's greater prairie-chicken

*Tympanuchus cupido attwateri*

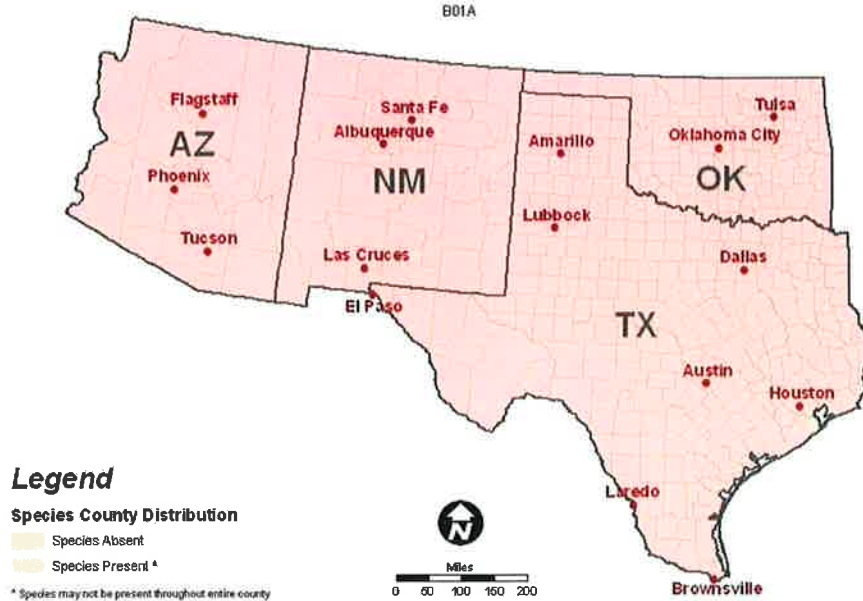
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## Eskimo curlew

*Numenius borealis*

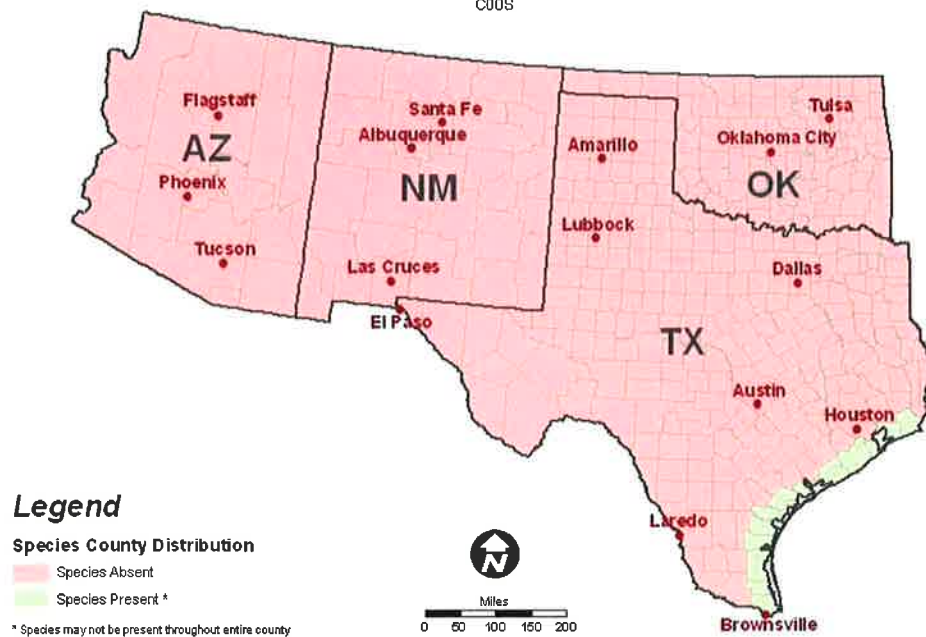
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## green sea turtle

*Chelonia mydas*

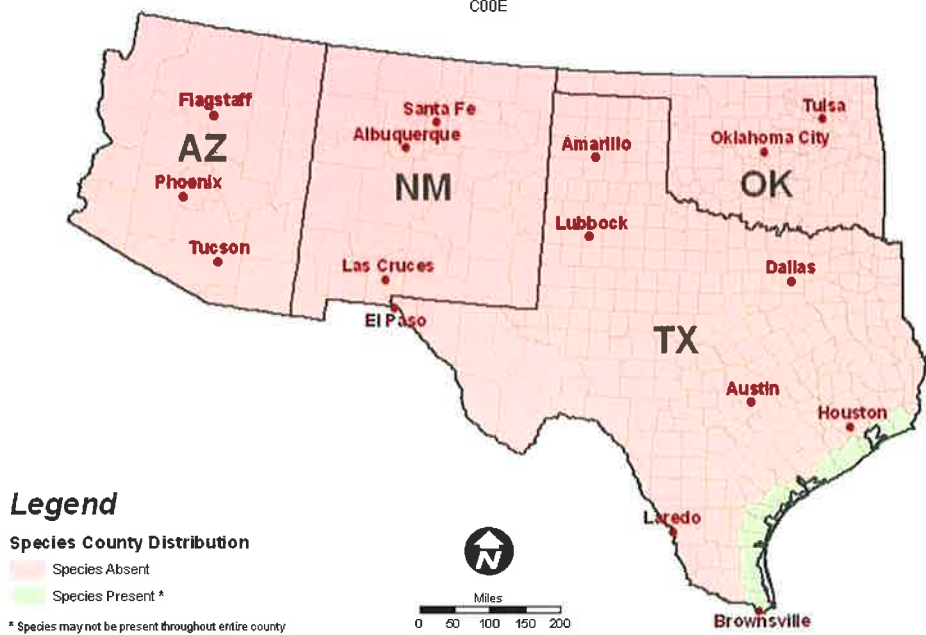
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## hawksbill sea turtle

*Eretmochelys imbricata*

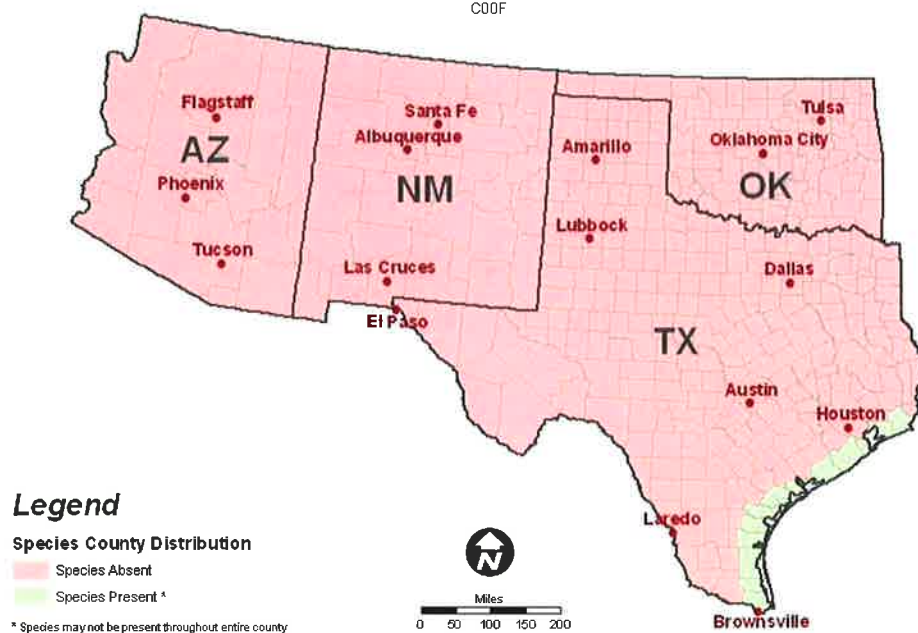
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## leatherback sea turtle

*Dermochelys coriacea*

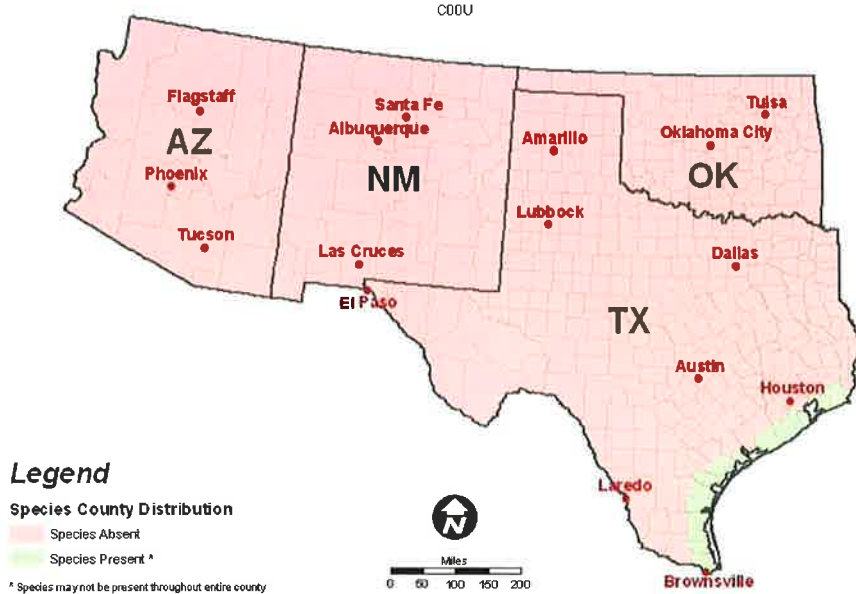
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## loggerhead sea turtle

*Caretta caretta*

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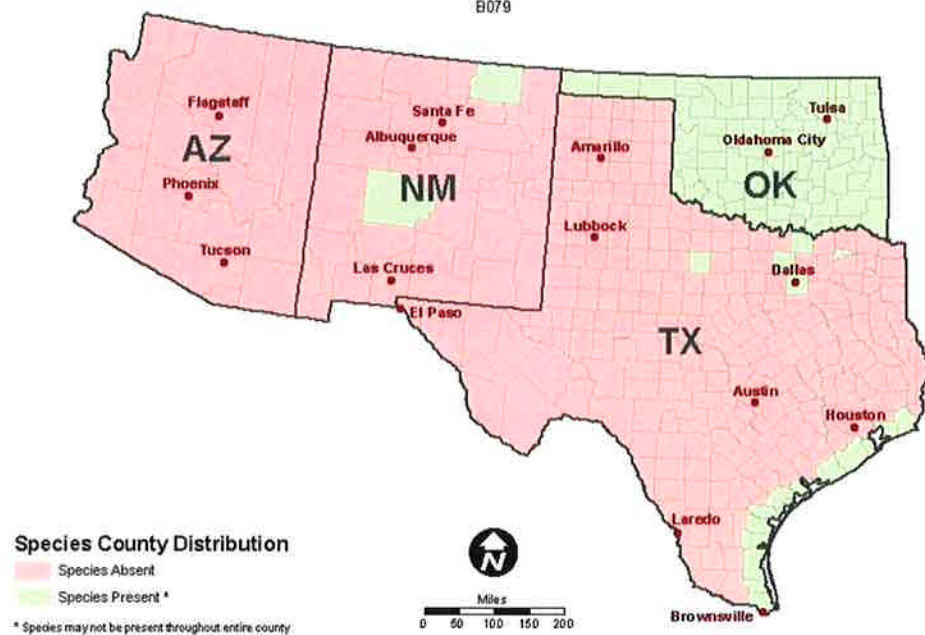




## piping plover

*Charadrius melodus*

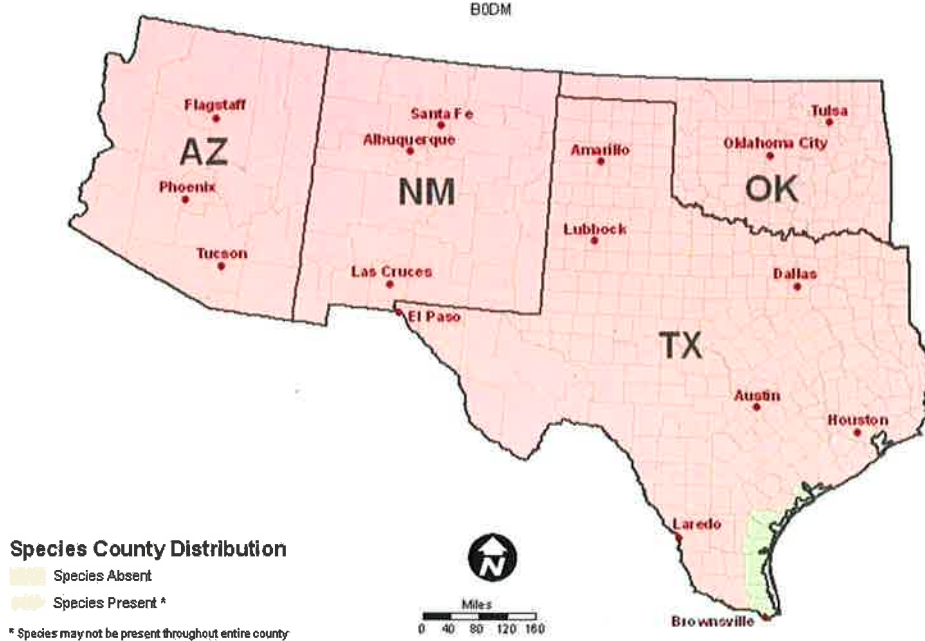
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## red knot

*Calidris canutus rufa*

B00M



**B.** Complete the following table: Species that may occur in Galveston County Texas. Those shaded gray are federally listed or proposed for federal listing.

SPECIES	STATE STATUS <sup>1</sup>	FEDERAL STATUS <sup>2</sup>	HABITAT PRESENT <sup>3</sup>	CRITICAL HABITAT <sup>4</sup>	TYPE	HABITAT TYPE
Alligator Snapping Turtle ( <i>Macrochelys temminckii</i> )	T	---	No	No	Reptile	Habitat consists of perennial water bodies, slow-moving, deep water of rivers, sloughs, oxbows, and canals or lakes associated with rivers, also swamps, bayous, and ponds near deep running water. They sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation.
American Peregrine Falcon ( <i>Falco peregrinus anatum</i> )	T	DL	Yes	No	Bird	Seasonal migrants can be found throughout the state. During migration they can be found in most open habitats including barrier islands, mudflats, coastlines, lake edges and mountain chains. The Texas breeding population is located in the Big Bend and Guadalupe Mountains national parks.
Attwater's Greater Prairie-Chicken ( <i>Tympanuchus cupido attwateri</i> )	E	E	No	No	Bird	Ideal habitat is on coastal prairie and it includes both tall and short grasses. The birds prefer large expanses of open prairies without any woody cover, and avoid areas with more than 25% cover of shrubs. Preferred habitat is also characterized by knolls and ridges, with the minor variations in topography and soils on these sites resulting in a variety of vegetation types. The species has been extirpated from Galveston County.
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	T	DL	Yes	No	Bird	Habitat most commonly includes areas close to (within 4 km) coastal areas, bays, rivers, lakes, reservoirs, or other bodies of water that reflect the general availability of primary food sources including fish, waterfowl, or seabirds.

SPECIES	STATE STATUS <sup>1</sup>	FEDERAL STATUS <sup>2</sup>	HABITAT PRESENT <sup>3</sup>	CRITICAL HABITAT <sup>4</sup>	TYPE	HABITAT TYPE
Brown Pelican ( <i>Pelecanus occidentalis</i> )	---	DM	Yes	No	Bird	Habitat mainly consists of coastal and near shore areas, where they roost and nest on islands and spoil banks. More than 90% of pelicans in Texas nest on Pelican Island in Corpus Christi Bay or Sundown Island in Matagorda Bay. Pelicans eat fish caught in the coastal waters.
Eskimo Curlew ( <i>Numenius borealis</i> )	E	E*	Yes	No	Bird	The Eskimo Curlew would migrate through the Galveston area during March or April on its way to breeding range in northern Canada and Alaska; however, it is presumed to be extinct because it has not been observed since the 1960s in Texas.
Green Sea Turtle ( <i>Chelonia mydas</i> )	T	T	Yes	No	Reptile	Sea turtles use a variety of coastal habitats including mangrove forest, lagoon, salt marsh, maritime hammock, barrier island, coastal strand, and the beach and dune system. Beach areas that could be used for nesting activities are located within the project footprint. However, green sea turtles are not known to nest anywhere on Galveston Island.
Hawksbill Sea Turtle ( <i>Eretmochelys imbricata</i> )	E	E	Yes	No	Reptile	Sea turtles use a variety of coastal habitats including mangrove forest, lagoon, salt marsh, maritime hammock, barrier island, coastal strand, and the beach and dune system. Beach areas that could be used for nesting activities are located within the project footprint. However, hawksbill sea turtles are not known to nest anywhere on Galveston Island.
Kemp's Ridley Sea Turtle ( <i>Lepidochelys kempii</i> )	E	E	Yes	No	Reptile	Sea turtles use a variety of coastal habitats including mangrove forest, lagoon, salt marsh, maritime hammock, barrier island, coastal

SPECIES	STATE STATUS <sup>1</sup>	FEDERAL STATUS <sup>2</sup>	HABITAT PRESENT <sup>3</sup>	CRITICAL HABITAT <sup>4</sup>	TYPE	HABITAT TYPE
						strand, and the beach and dune system. Beach areas that could be used for nesting activities are located within the project footprint.
Leatherback Sea Turtle ( <i>Dermochelys coriacea</i> )	E	E	Yes	No	Reptile	Sea turtles use a variety of coastal habitats including mangrove forest, lagoon, salt marsh, maritime hammock, barrier island, coastal strand, and the beach and dune system. Beach areas that could be used for nesting activities are located within the project footprint. However, leatherback sea turtles are not known to nest anywhere on Galveston Island.
Loggerhead Sea Turtle ( <i>Caretta caretta</i> )	T	T	Yes	No	Reptile	Sea turtles use a variety of coastal habitats including mangrove forest, lagoon, salt marsh, maritime hammock, barrier island, coastal strand, and the beach and dune system. Beach areas that could be used for nesting activities are located within the project footprint. However, loggerhead sea turtles are not known to nest anywhere on Galveston Island.
Louisiana Black Bear ( <i>Ursus americanus luteolus</i> )	T	T*	No	No	Mammal	The black bear is found throughout North America. The subspecies <i>luteolus</i> of Louisiana, Mississippi and Texas is listed by USFWS as Threatened. Other bears of the species <i>U. americanus</i> within the same range of <i>luteolus</i> are designated as threatened because of the similarity of appearance. Black bears inhabit forests and nearby openings, including forested wetlands. They have been found in the Big Bend region and other areas of west and southwest Texas. Black bears are sighted very rarely in the wooded areas of eastern Texas, primarily the result of individuals that have

SPECIES	STATE STATUS <sup>1</sup>	FEDERAL STATUS <sup>2</sup>	HABITAT PRESENT <sup>3</sup>	CRITICAL HABITAT <sup>4</sup>	TYPE	HABITAT TYPE
						wandered into the state from release sites in Louisiana. This species is unlikely to be in the project area due to a lack of habitat.
Piping Plover ( <i>Charadrius melodus</i> )	T	T	Yes	No	Bird	Wintering habitat preferred by piping plovers in Texas includes very sparsely vegetated tidal mudflats, sand flats, or algal flats.
Reddish Egret ( <i>Egretta rufescens</i> )	T	---	Yes	No	Bird	These birds breed along the entire Texas coast and on rare occasions has been spotted breeding inland. During fall they have been observed migrating south. They forage in shallow water (usually less than 15 cm deep). They use saline, hypersaline, or brackish coastal habitats including barren sand or mud tidal flats, salt ponds, and lagoons. On occasion they feed in other habitats including coastal beaches, sparsely-vegetated freshwater marshes, and the shores of lake and reservoirs.
Red Knot ( <i>Calidris canutus rufa</i> )	---	P**	Yes	No	Bird	While in Texas, red knots are primarily found in intertidal marine habitats. They rely on shoreline habitat for feeding and resting.
Red Wolf ( <i>Canis rufus</i> )	E	E*	Yes	No	Mammal	This species has been extirpated from Texas.
Sprague's Pipit ( <i>Anthus spragueii</i> )	---	C**	No	No	Bird	Habitat consists of well-drained open grasslands and fields.
Texas Horned Lizard ( <i>Phrynosoma cornutum</i> )	T	---	No	No	Reptile	They can be found in arid and semiarid habitats in open areas with sparse plant cover. Because horned lizards dig for hibernation, nesting and insulation purposes, they commonly are found in loose sand or loamy soils. Texas Horned Lizards feed primarily on harvester ants. Today, Texas horned lizards are only seen in

SPECIES	STATE STATUS <sup>1</sup>	FEDERAL STATUS <sup>2</sup>	HABITAT PRESENT <sup>3</sup>	CRITICAL HABITAT <sup>4</sup>	TYPE	HABITAT TYPE
						the western third of the state.
Timber/Canebrake Rattlesnake ( <i>Crotalus horridus</i> )	T	---	No	No	Reptile	Timber rattlesnakes prefer moist lowland forests and hilly woodlands or thickets near permanent water sources such as rivers, lakes, ponds, streams and swamps where tree stumps, logs and branches provide refuge.
West Indian Manatee ( <i>Trichechus manatus</i> )	E	E	No	No	Mammal	Manatees usually inhabit waters over 1.5 meters deep. Appropriate habitat does not exist for this species.
White-faced Ibis ( <i>Plegadis chihi</i> )	T	---	Yes	No	Bird	This ibis is found year-round in Texas. It prefers freshwater marshes, sloughs, and irrigated rice fields, but will also use brackish and saltwater habitats. They nest in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats. This species is not known to nest in the project area.
White-tailed Hawk ( <i>Buteo albicaudatus</i> )	T	---	Yes	No	Bird	This hawk is found near the coast on prairies, cordgrass flats, and scrub-live oak. In addition, it can be found further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral.
Whooping Crane ( <i>Grus americana</i> )	E	E*	Yes	No	Bird	Whooping cranes winter in the areas near Aransas National Wildlife Refuge. There are no Whooping cranes in Galveston Island State Park.
Wood Stork ( <i>Mycteria americana</i> )	T	-----	Yes	No	Bird	Wood Storks forage in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water. Wood Storks nest in swamps or on islands surrounded by relatively broad expanses of open water. Although historically wood storks nested in Texas, there have been no observations of such



SPECIES	STATE STATUS <sup>1</sup>	FEDERAL STATUS <sup>2</sup>	HABITAT PRESENT <sup>3</sup>	CRITICAL HABITAT <sup>4</sup>	TYPE	HABITAT TYPE
						activities since 1960.

## Notes:

E = Endangered, T = Threatened, DL = Delisted, DM = Delisted, but Monitored, C=candidate species, P= Proposed

\* Although federally endangered, this species is not considered by the USFWS as a potential species to occur on Galveston Island.

\*\* According to the USFWS, the red knot is not known to occur in Galveston County. However, both species have been sighted recently on Galveston Island according to [ebird.org](http://ebird.org) (Accessed April 2013).

\*\*\* There are two known breeding populations of wood storks; the first is the endangered flock that migrates from the Southeastern U.S. further north and possibly into Alabama and Mississippi. The other, non-endangered population, migrates from Argentina and Mexico into Texas and Louisiana and further north along the Mississippi River. The flock protected by the ESA does not occur in Texas, and therefore the Wood Stork is not considered within this ESA consultation.

- 1 The TPWD list was used to identify state-listed species (Accessed April 2013: [http://www.tpwd.state.tx.us/gis/ris/es/ES\\_Reports.aspx?county=Galveston](http://www.tpwd.state.tx.us/gis/ris/es/ES_Reports.aspx?county=Galveston))
- 2 The USFWS list was used to identify federally-listed species in Galveston County, Texas (Accessed April 2013: [http://www.fws.gov/southwest/es/ES\\_ListSpecies.cfm](http://www.fws.gov/southwest/es/ES_ListSpecies.cfm)).
- 3 Habitat refers to potential habitat for the species within the project area.
- 4 Critical Habitat refers to critical habitat for the species within the project area.

**VI. Location (attach map):** See previous figures in Section IV.

**A. Ecoregion Number and Name:** Region 2, Southwest Region

**B. County and State:** Galveston County, Texas

**C. Section, township, and range (or latitude and longitude):** The proposed project is located in Galveston Island State Park, Galveston, Texas (lat: 29.18935, long: -94.962387).

**D. Distance (miles) and direction to nearest town:** Residential and commercial properties occur on both sides of Galveston Island State Park with the Village of Jamaica Beach serving as a primary residential area to the west of the site. Jamaica beach is adjacent to GISP and is less than 0.5 miles from the proposed project.

**VII. Determination of Effects:**

**A.** Explanation of effects of the action on species and critical habitats in item V.B (attach additional pages as needed):

SPECIES	SPECIES IMPACTS
Attwater's Greater Prairie-Chicken ( <i>Tympanuchus cupido attwateri</i> )	The species occupies large expanses of coastal prairie which does not exist on Galveston Island and the species has been extirpated from Galveston County. No impacts are anticipated.
Eskimo Curlew ( <i>Numenius borealis</i> )	In the past, this species would migrate through the Galveston area during March or April. It is presumed to be extirpated from Texas because it has not been observed since the 1960s in Texas and is possibly extinct (USFWS 2011). No impacts are anticipated.
Green Sea Turtle ( <i>Chelonia mydas</i> )	Habitat for this species exists in the sandy beach area in the southern part of the project area. Only dune walkovers are proposed for construction in this area which will be constructed outside of the nesting season. Although nesting habitat is present, this species is not known to nest on Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation. No impacts are anticipated.

SPECIES	SPECIES IMPACTS
<p>Hawksbill Sea Turtle (<i>Eretmochelys imbricata</i>)</p>	<p>Habitat for this species exists in the sandy beach area in the southern part of the project area. Only dune walkovers are proposed for construction in this area which will be constructed outside of the nesting season. Although nesting habitat is present, this species is not known to nest on Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation. <u>No impacts are anticipated.</u></p>
<p>Kemp's Ridley Sea Turtle (<i>Lepidochelys kempii</i>)</p>	<p>Kemp's Ridley sea turtle is the only known nesting sea turtle on Galveston Island. Habitat for this species exists in the sandy beach area in the southern part of the project area. Only dune walkovers are proposed for construction in this area which will be constructed outside of the nesting season. Since Kemp's Ridley sea turtle is a day-time nester and egg hatching also usually occurs during the day, lighting does not have much of an effect on biological processes for this species. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation. No impacts are anticipated.</p>
<p>Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)</p>	<p>Habitat for this species exists in the sandy beach area in the southern part of the project area. Only dune walkovers are proposed for construction in this area which will be constructed outside of the nesting season. Although nesting habitat is present, this species is not known to nest on Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation. No impacts are anticipated.</p>
<p>Loggerhead Sea Turtle (<i>Caretta caretta</i>)</p>	<p>Habitat for this species exists in the sandy beach area in the southern part of the project area. Only dune walkovers are proposed for construction in this area which will be constructed outside of the nesting season. Although nesting habitat is present, this species is not known to nest on Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation. <u>No impacts are anticipated.</u></p>
<p>Louisiana Black Bear (<i>Ursus americanus luteolus</i>)</p>	<p>This species does not exist within Galveston Island State Park. No impacts are anticipated.</p>
<p>Piping Plover (<i>Charadrius melodus</i>)</p>	<p>Habitat for this species exists in the sandy beach area in the southern part of the project area. Only dune walkovers are proposed for construction in this</p>

SPECIES	SPECIES IMPACTS
	area. The designated paths to the beach will concentrate visitors crossing the dunes and minimize effects to piping plover by protecting dune habitats. The camping facilities are proposed to house fewer sites than what was present pre-Hurricane Ike; therefore, visitor use isn't expected to deter plovers from using the beach habitats as they were not deterred before. Therefore, this project is not expected to increase impacts beyond what was previously present. In order to minimize impacts special management practices will be used during construction activities (see Section VII.B).
Red Knot ( <i>Calidris canutus rufa</i> )	This species uses shoreline habitat for feeding and resting. The designated paths to the beach will concentrate visitors crossing the dunes and minimize effects to red knots by protecting dune habitats. The camping facilities are proposed to house fewer sites than what was present pre-Hurricane Ike; therefore, visitor use isn't expected to deter red knots from using the beach habitats as they were not deterred before. In order to minimize impacts special management practices will be used during construction activities (see Section VII.B).
Red Wolf ( <i>Canis rufus</i> )	This species has been extirpated from Texas. No impacts are anticipated.
Sprague's pipit ( <i>Anthus spragueii</i> )	Appropriate habitat for this species does not exist within the Galveston Island State Park project area. There will be no impacts to this species.
West Indian Manatee ( <i>Trichechus manatus</i> )	Appropriate habitat for this species does not exist within Galveston Island State Park and the species is not expected to occur adjacent to the Park. There will be no impacts to this species.
Whooping Crane ( <i>Grus americana</i> )	This species uses wetlands during its migration. However, it is not known to occur in Galveston County. No impacts are anticipated.

The Attwater's greater prairie-chicken, Eskimo Curlew, red wolf, Louisiana black bear, West Indian manatee, Sprague's pipit, and whooping crane are not expected to be found in the project area. Therefore, no additional actions are expected to be taken in regards to those species. If any of these species are identified in the project area during construction of the project, construction would cease and USFWS would be contacted to determine avoidance measures to minimize impacts to this species.

**B. Explanation of actions to be implemented to reduce adverse effects:**

Listed species (sea turtles and piping plover) and a candidate species (red knot) have the potential to be present in the project area. The table below describes the actions that will be taken to minimize impacts.

SPECIES	ACTIONS TO MINIMIZE IMPACTS
Green Sea Turtle ( <i>Chelonia mydas</i> )	Green sea turtles are not known nest on Galveston Island. However, they could nest on the sandy areas at the base of the dunes in the project area. TPWD directives and standard operating procedures ensure project construction is completed outside of the nesting season. Therefore, the construction of dune walkovers (the only proposed development that will affect sea turtle nesting) has been scheduled to avoid sea turtle nesting season, which extends from April 1 until October 1. In addition, indirect impacts to sea turtles will be avoided by relocating sea turtle nests from Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation.
Hawksbill Sea Turtle ( <i>Eretmochelys imbricata</i> )	Hawksbill sea turtles are not known nest on Galveston Island. However, they could nest on the sandy areas at the base of the dunes in the project area. TPWD directives and standard operating procedures ensure project construction is completed outside of the nesting season. Therefore, the construction of dune walkovers (the only proposed development that will affect sea turtle nesting) has been scheduled to avoid sea turtle nesting season, which extends from April 1 until October 1. In addition, indirect impacts to sea turtles will be avoided by relocating sea turtle nests from Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation.
Kemp's Ridley Sea Turtle ( <i>Lepidochelys kempii</i> )	Kemp's ridley sea turtles may nest on the sandy areas at the base of the dunes in the project area. TPWD directives and standard operating procedures ensure project construction is completed outside of the nesting season. Therefore, the construction of dune walkovers (the only proposed development that will affect sea turtle nesting) has been scheduled to avoid sea turtle nesting season, which extends from April 1 until October 1. In addition, indirect impacts to sea turtles will be avoided by relocating sea turtle nests from Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation.

SPECIES	ACTIONS TO MINIMIZE IMPACTS
Leatherback Sea Turtle ( <i>Dermochelys coriacea</i> )	Leatherback sea turtles are not known nest on Galveston Island. However, they could nest on the sandy areas at the base of the dunes in the project area. TPWD directives and standard operating procedures ensure project construction is completed outside of the nesting season. Therefore, the construction of dune walkovers (the only proposed development that will affect sea turtle nesting) has been scheduled to avoid sea turtle nesting season, which extends from April 1 until October 1. In addition, indirect impacts to sea turtles will be avoided by relocating sea turtle nests from Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation.
Loggerhead Sea Turtle ( <i>Caretta caretta</i> )	Loggerhead sea turtles are not known nest on Galveston Island. However, they could nest on the sandy areas at the base of the dunes in the project area. TPWD directives and standard operating procedures ensure project construction is completed outside of the nesting season. Therefore, the construction of dune walkovers (the only proposed development that will affect sea turtle nesting) has been scheduled to avoid sea turtle nesting season, which extends from April 1 until October 1. In addition, indirect impacts to sea turtles will be avoided by relocating sea turtle nests from Galveston Island. In coordination with the National Park Service's Sea Turtle Recovery Project, nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the sea turtle nesting season. Any sea turtle nests located are excavated and the eggs are relocated to Padre Island National Seashore, on the southern Texas coast, for incubation.
Piping Plover ( <i>Charadrius melodus</i> )	In order to minimize impacts special management practices will be used during construction activities. These practices include having an onsite monitor, avoiding work after dark, maintaining a speed limit of 10 mph. The onsite monitor will have stop work authority and will be present at the site when construction is occurring on the beach. The trained monitor will survey the beach daily prior to the initiation of any construction activity and periodically throughout the day. If large construction vehicles are left overnight on the beach, the areas around the tires will be surveyed before moving the vehicle. The monitor will keep a daily log documenting all surveys conducted during the dune walkovers construction project.
Red Knot ( <i>Calidris canutus rufa</i> )	In order to minimize impacts special management practices will be used during construction activities. These practices include having an onsite monitor, avoiding work after dark, and maintaining a speed limit of 10 mph. The onsite monitor will have stop work authority and will be present at the site when construction is occurring on the beach. The trained monitor will survey the beach daily prior to the initiation of any construction activity and periodically throughout the day. The monitor will keep a daily log documenting all surveys conducted during the dune walkovers construction project.

#### VIII. Effect Determination and Response Requested:

SPECIES	SPECIES IMPACTS			RESPONSE REQUESTED
	NE	NLAA	MAA	
Attwater's Greater Prairie-Chicken	X			Concurrence



SPECIES	SPECIES IMPACTS			RESPONSE REQUESTED
	NE	NLAA	MAA	
<i>(Tympanuchus cupido attwateri)</i>				
Eskimo Curlew <i>(Numenius borealis)</i>	X			Concurrence
Green Sea Turtle <i>(Chelonia mydas)</i>	X			Concurrence
Hawksbill Sea Turtle <i>(Eretmochelys imbricata)</i>	X			Concurrence
Kemp's Ridley Sea Turtle <i>(Lepidochelys kempii)</i>	X			Concurrence
Leatherback Sea Turtle <i>(Dermochelys coriacea)</i>	X			Concurrence
Loggerhead Sea Turtle <i>(Caretta caretta)</i>	X			Concurrence
Louisiana Black Bear <i>(Ursus americanus luteolus)</i>	X			Concurrence
Piping Plover <i>(Charadrius melodus)</i>		X		Concurrence
Red Knot <i>(Calidris canutus rufa)</i>		X		Conference
Red Wolf <i>(Canis rufus)</i>	X			Concurrence
Sprague's pipit <i>(Anthus spragueii)</i>	X			Conference
Whooping Crane <i>(Grus americana)</i>	X			Concurrence

## IX. Migratory Birds and Bald Eagles

### A. Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. (see Attached Sheet)

There are over 270 species of migratory birds that are present during at least part of the year at Galveston Island State Park. Of these species, only a few have the potential to nest within or near the proposed Galveston Island State Park Beach Redevelopment Project. The table below identifies migratory bird species that may be within Galveston Island State Park and it describes their abundance, habitat, and behaviors. There are no golden eagles present within Galveston Island State Park. On rare occasions bald eagles may nest within the Park; however, their nests are not within 660 feet of the Action Area.

### B. If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

It is possible that migratory birds may breed in the Project area. There would be enough disturbances to displace or destroy nests, eggs or chicks. Therefore, at least the initial site access, clearing, and construction effort would be conducted outside of the spring nesting season (March 15<sup>th</sup> to July 1<sup>st</sup>). Once

the site has been cleared and construction commenced, nesting birds would avoid the construction area and further work can occur throughout the year. Construction activities would produce enough noise and disturbance to prevent birds from nesting in the area, thereby preventing impacts to nesting birds. The designated paths to the beach (boardwalks) would concentrate visitors to the south side of the beach and minimize effects to wildlife and habitats by protecting the dunes and reducing the area of impacts. The camping facilities are proposed to house fewer sites than what was present pre-Hurricane Ike so visitor use isn't expected to deter birds as no deterrence was observed prior to Ike.

**X. Signatures from the station preparing the Intra-Service Biological Evaluation:**

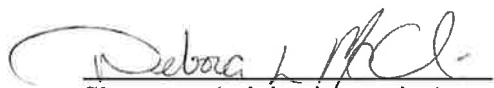
/s/ Holly N. Blalock-Herod

12/31/2013

Signature (originating station - preparer)

date

DOI Case Management Team, ESA Coordinator



1/9/14  
date

Signature (originating station)

Deputy Case Manager

This analysis resulted in a determination that no "take" of a federally listed species would occur. If any of the following occur, then there must be reinitiation on this action:

- (1) any incidental take occurs
- (2) new information reveals effects of the Service's action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion;
- (3) the Service's action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or
- (4) a new species is listed or critical habitat designated that may be affected by the action.

In instances where any incidental take occurs, the operations causing such take must cease until reinitiation.

If reinitiation is required, contact the (Clear Lake Field Office) about the action.

17629 El Camino Real #211, Houston, Texas 77058

Phone: 281-286-8282; Fax: 281-488-5882

**X. Reviewing Ecological Services Office Evaluation:**

A. Concurrence X Nonconcurrence \_\_\_\_\_


B. Formal consultation required \_\_\_\_\_

C. Conference required \_\_\_\_\_

D. Informal conference required \_\_\_\_\_

**E. Remarks (attach additional pages as needed):**

This concurrence is only for activities subjected to Section 7 of the ESA.

  
Signature

2-14-14  
date

for  
Edna Erthong  
Field Supervisor

Coastal ES office, Houston, TX  
office

**XI. Literature Cited**

USFWS. 2011. Eskimo Curlew (*Numenius borealis*) 5-Year Review: Summary and Evaluation.  
[http://ecos.fws.gov/docs/five\\_year\\_review/doc3902.pdf](http://ecos.fws.gov/docs/five_year_review/doc3902.pdf)

Table 1. Bird frequency of occurrence and types of behaviors exhibited in Galveston Island State Park. Species abundance is identified for each season the species is known to be in the Park. Abbreviations for seasons are W=winter (December, January, February), Sp=spring (March, April, May), S=summer (June, July, August), F=fall (September, October, November). Abbreviations describing species abundance as observed during each season and during breeding activities: A=abundant, impossible to miss; R=rare, not expected every year; O=occasional, only one or two reported per season; U=uncommon, present but might not be found on every outing; F=fairly common, should be possible to find on most outings; . Abbreviations describing habitat are: U=upland/grassland; For=forested; A=aquatic; V=vegetated; UV=unvegetated; Sp=spoiled; F=freshwater; S=saltwater; B=brackish. Additionally, the symbol ‘-’ means ‘to a limited degree’.

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Common Loon				U	U	Yes	eat fish up to 10-in, dive in sea, lakes, rivers	A F/B
Red-throated Loon				R	R		forage near water surface	A F/B
Pied-billed Grebe	C	A	C	C	C	Yes	forage near water surface	A V F/B
Horned Grebe				O	O	Yes	forage near water surface	A V F/B
Eared Grebe	C		C	C	C		forage near water surface	A V F/B
American White Pelican	C		C	A	A		forage freshwater fish	A F/B
Brown Pelican	R						forage saltwater fish	A F/B
Double-crested Cormorant	C		C	C	C		dive for fish	A F/B
Neotropic Cormorant	U	U	U	O	O		dive for fish	A F/B
Anhinga			U	O	O		dive for fish	A F
Magnificent Frigatebird	O		O				forage near water surface	A S
American Bittern	C	C	C	C	C		forage near water - insect, fish, crustaceans, amphibians, reptiles, and small mammals	A V F/B
Least Bittern	C	C	C				forage near water - insect, fish, crustaceans	A V F/B
Great Blue Heron	C	C	C	C	C		forage near water - insect, fish, crustaceans, amphibians, reptiles, and small mammals	A V F/B
Great Egret	C	C	C	C	C		forage near water - insect, fish, crustaceans, amphibians	A V F/B

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Snowy Egret	C	C	C	C	C		forage near water - insect, fish, crustaceans,	A V F/B
Little Blue Heron	U	U	U	U	U		forage near water - insect, fish, crustaceans,	A V F
Tricolored Heron	C	C	C	C	C		forage near water - insect, fish, crustaceans,	A V F/B
Reddish Egret	U	U	U				forage near water - insect, fish, crustaceans,	A V F/B
Cattle Egret	A	A	A	O	O		uplands - insects	A U V
Green-backed Heron	C	C	U	R	R		near water - insect, fish, crustaceans	A V F/B
Black-crowned Night-Heron	C	C	C	C	C		aquatic invertebrates, fish, amphibians, lizards, snakes, rodents, eggs	A V F/B
Yellow-crowned Night-Heron	U	U	U	U	U		crustaceans, insects, fish, snails, worms, reptiles, small mammals	A V F/B
White Ibis	O	C	O	O	O		insects, frogs, aquatic invertebrates, snakes, and small fish	A F/B
White-faced Ibis	C		O	O	O		insects, frogs, aquatic invertebrates, snakes, and small fish	A F/B
Roseate Spoonbill	O	O	O	U	U		forage near water - insect, fish, crustaceans, amphibians	A V B
Wood Stork		U	U				of fish, crustaceans, amphibians, tadpoles, insects and reptiles	A V F/B



SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Fulvous Whistling-Duck	R	R	R				Seeds of water plants, rice, aquatic invertebrates	A V F/B
Greater White-fronted Goose	O		C	C	C		seeds, grain, grasses, sedges, berries	U A V F
Snow Goose	O		C	A	A		seeds, stems, leaves, tubers, and roots	U A V F
Canada Goose	O		O	O	O		seeds, grain, grasses, sedges, berries	U A V F
Wood Duck			R	R	R		seeds, fruits, insects and other arthropods	A V F
Green-winged Teal	O		A	A	A		seeds , grasses, aquatic insects, mollusks, crustaceans, tadpoles	A V F
American Black Duck	R		R	R	R		seeds, roots, tubers, leaves of plants, aquatic insects, crustaceans, mollusks, and fish	A V F/B
Mottled Duck	C	C	C	C	C		seeds of grasses, aquatic vegetation, aquatic invertebrates, fish	A V F/B
Mallard	O		O	O	O		seeds, aquatic vegetation, insects, earthworms, snails and freshwater shrimp	A V F/B
Northern Pintail	O		C	C	C		grain, seeds, weeds, aquatic insects, crustaceans, and snails.	A V F
Blue-winged Teal	O		C	C	C		grain, seeds, weeds, aquatic insects, crustaceans, and snails.	A V F/B
Cinnamon Teal					O	O	seeds, aquatic vegetation, aquatic and semi-terrestrial insects, snails, and zooplankton	A V F

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Northern Shoveler	O		C	C	C		invertebrates and some seeds	A V F/B
Gadwall	O		C	C	C		grain, seeds, weeds, aquatic insects, crustaceans, and snails.	A V F/B
American Wigeon	O		C	C	C		aquatic vegetation, insects, and mollusk	A V F
Canvasback	O		C	C	C		seeds, buds, leaves, tubers, roots, snails, and insect larvae	A V F/B
Redhead	O		O	O	O		aquatic vegetation, insects, and mollusk, fish	A V F/B
Ring-necked Duck	O		U	U	U		aquatic vegetation, insects, and mollusk	A V F/B
Greater Scaup			R	R	R		seeds, aquatic vegetation, insects, crustaceans, and mollusks	A F/B
Lesser Scaup	C		C	A	A		seeds, aquatic vegetation, insects, crustaceans, and mollusks	A F/B
Oldsquaw aka Long-tailed Duck				R	R		aquatic invertebrates, including insects and crustaceans, bivalves, fish, fish eggs, and some vegetation	A F/B
Black Scoter				R	R		aquatic invertebrates, aquatic insects and crustaceans, mollusks, and some vegetation	A S
Surf Scoter				R	R		freshwater invertebrates, especially mollusks	A S
Common Goldeneye			R	R	R		aquatic invertebrates, fish and some vegetation	A F/B

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Bufflehead			R	R	R		dive for aquatic invertebrates, crustaceans, and mollusks and some vegetation mainly seeds	A F/B
Hooded Merganser			R	R	R		dive for small fish , aquatic invertebrates, crustaceans (especially crayfish), amphibians, vegetation, and mollusks	A V F/B
Common Merganser					R		eat fish, aquatic invertebrates (including insects, mollusks, crustaceans, and worms), frogs, small mammals, birds, and plants	A V F
Red-breasted Merganser			O	O	O		fish; crustaceans, insects, and tadpoles	A V F/B
							eat aquatic invertebrates (including insects, crustaceans, zooplankton), and other invertebrates, and aquatic plants and seeds	A V F/B
Ruddy Duck	O		C	U	U			
Black Vulture	U	U	U	U	U		carriion	U V
Turkey Vulture	O	O	O	O	O		carriion	U V
Osprey	R		R				fish	A F/B
American Swallow-tailed Kite							insects, small reptiles, small amphibians, and fruit	For
Black-shouldered Kite			R	R	R		small mammals, small reptiles, birds, large insects	For
Mississippi Kite	O		O				insects, small birds	For F

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Bald Eagle				R	R		eat birds, reptiles, amphibians, invertebrates such as crabs, and mammals including rabbits and muskrats, taking their prey live, fresh, or as carrion	For F/B
Northern Harrier	U	U	U	C	C		small mammals, reptiles, amphibians, and birds	U V F/B
Sharp-shinned Hawk	O	O	O				birds, small mammals, and insects	For
Cooper's Hawk	O	O	O				birds and small mammals	For U
Red-shouldered Hawk	O	O	O	O	O		small mammals, reptiles, amphibians and occasionally birds	For U
Broad-winged Hawk	U		C				small mammals, reptiles, and insects	For
Swainson's Hawk	U		U				mammals, birds, reptiles, and insects	U
Red-tailed Hawk			C	C	C		mammals, birds and reptiles	U
Rough-legged Hawk			R	R	R		small mammals and birds	U
Crested Caracara				R	R		insects, occasionally fish, reptiles, amphibians, birds, and mammals	U
American Kestrel			C	C	C		insects, other invertebrates, small rodents, birds	U V
Merlin	R		R				small birds and insects	U For
Peregrine Falcon	R		R				birds	Cliffs
Northern Bobwhite	U	U	U	U	U		seeds and leaves, and insects	U V
Yellow Rail	R		R	R	R		snails, insects and seeds	A V F/B
Black Rail	R		R	R	R		Small invertebrates and seeds	A V F

SPECIES	SEASON					BEHAVIORS			HABITAT
	Sp	S	F	W		Breeding	Roosting	Foraging	
Clapper Rail	C	C	C	C	C	C		crustaceans, but also small fish, insects, seeds, birds eggs, and slugs	A V S/B
King Rail	O	O	O	O	O	O		crustaceans, crayfish, aquatic insects, and small fish	A V F/B
Virginia Rail	U	U	C	C	C	C		invertebrates, fish, frogs, and small snakes	A V F/B
Sora	C	C	C	C	C	C		seeds and aquatic invertebrates	A V F/B
Purple Gallinule	U	U	U					seeds, flowers, fruits, grains, and some invertebrates	A V F
Common Moorhen	A	A	C	U	U	U		seeds, sedges, and snails	A V F/B
American Coot	C	O	A	A	A	A		aquatic plants, insects, crustaceans, snails, and small vertebrates such as tadpoles and salamanders	A V F/B
Sandhill Crane					R	R		grains and seeds, insects, invertebrates, and small vertebrates	U A V F/B
Black-bellied Plover	C		C	C	C	C		insects, invertebrates, bivalves, and crustaceans	U B
Lesser Golden-Plover	O		R					invertebrates, berries, leaves, and seeds	U B
Snowy Plover	C	U	U	C	C	C		Terrestrial and aquatic invertebrates.	UV Sp B/S
Wilson's Plover	U	U						Crustaceans, especially fiddler crabs, worms, insects	UV A S
Semipalmated Plover	U		U	U	U	U		Insects	A S/B U/A V
Piping Plover	C	U	U	C	C	C		Insects and small aquatic invertebrates	F/B

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Killdeer	C	C	C	C	C		Invertebrates, including earthworms, snails, crayfish, grasshoppers, beetles, and aquatic insect larva, seeds and frogs and minnows	U/A V F/B
American Oystercatcher	R	R	R	R	R		Invertebrates mostly shellfish including mussels and clams of many varieties, limpets, oysters, and sea urchins, starfish, crabs, and worms	A S/B
Black-necked Stilt	C	C	C	C	R		Aquatic invertebrates including crawfish, brine flies, brine shrimp, beetles, water boatmen, and fish and tadpoles	A V F/B
American Avocet	O		C	O	O		Aquatic invertebrates	A V F/B
Greater Yellowlegs	C		C	O	O		Invertebrates, small fish, frogs, and occasionally seeds and berries	A V F/B
Lesser Yellowlegs	C		C	O	O		Aquatic and terrestrial invertebrates particularly flies and beetles and small fish and seeds	A V F/B
Solitary Sandpiper	U		U				Aquatic and terrestrial invertebrates including insects and insect larvae, spiders, worms, and tadpoles	A V F/B-
Willet	C	C	C	C	C		Aquatic and terrestrial invertebrates including spiders and small fish	A V F/B

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Spotted Sandpiper	C		C	U	U		Aquatic and terrestrial invertebrates including midges, mayflies, flies (particularly their aquatic larvae), grasshoppers, beetles, worms, snails, and small crustaceans and small fish	A V F/B-
Upland Sandpiper	O		O				Terrestrial invertebrates particularly weevils and other beetles, grasshoppers, and crickets. Also some weed seeds	UV
Whimbrel	U		R				Primarily marine invertebrates, especially small crabs, but also insects, berries, and even flowers	U/A VF/B
Long-billed Curlew	C		C	C	C		Terrestrial and aquatic invertebrates including earthworms, shrimp and crabs, grasshoppers, beetles, caterpillars, spiders, and occasionally small animals	U/A V B
Hudsonian Godwit	U						Insects and other invertebrates	A V F/B-
Marbled Godwit	O		O	U	U		Insects and other invertebrates	A V F/B-
Ruddy Turnstone	O		O	O	O		Insects and other invertebrates	A F/B
Red Knot	O		O				Invertebrates, especially bivalves, small snails, and crustaceans. During breeding season, also eats terrestrial invertebrates	VA- F/B



SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Sanderling	O	C	O	O	O		Invertebrates including small crabs, amphipods and other small crustaceans, polychaete worms, mollusks, and horseshoe crab eggs, crane flies, midges, mosquitoes, beetles, butterflies, and moths may eat plant material, including buds and shoots, roots, grass seeds, algae, and mosses	AV F/B
Semipalmated Sandpiper	A		A	C	C		Invertebrates - insects	AV F/B
Western Sandpiper	C		C	O	O		Invertebrates - insects	AV F/B
Least Sandpiper	C		C	U	U		Invertebrates such as amphipods, isopods, gastropods, horseshoe crab eggs, water fleas, midges and flies, beetles, and dragonflies may eat seeds of marsh grasses	AV F/B
White-rumped Sandpiper	U						Invertebrates - insects	AV F/B
Baird's Sandpiper	U		U				Invertebrates - insects	VA- F/B
Pectoral Sandpiper	C		C				Invertebrates - insects	VA- F/B-
Dunlin	C		C	U	U		Invertebrates - insects	VA- F/B
Stilt Sandpiper	C		C				Invertebrates - insects	VA- F/B-
Buff-breasted Sandpiper	O		O				Invertebrates - insects	UV
Short-billed Dowitcher	U		U	U	U		Aquatic invertebrate and fly larvae, other insects, snails, and some seeds	AV F/B

SPECIES	SEASON					BEHAVIORS			HABITAT
	Sp	S	F	W		Breeding	Roosting	Foraging	
Long-billed Dowitcher	C		C	O	O			Aquatic invertebrate and insects	AV F/B
Common Snipe	C		C	C	C			Larval insects, worms, crustaceans, mollusks, some vegetation and seeds	AV F/B-
American Woodcock				R	R			Invertebrates, especially earthworms	For
Wilson's Phalarope	C		C					Invertebrates - insects	AV F/B-
Laughing Gull	C	C	C	O	O			Invertebrates, including earthworms, insects (including flying ones), snails, crabs, and crab eggs, fish, squid, berries, garbage, offal, and handouts from beachgoers and occasionally eggs of other bird	A F-/B
Franklin's Gull			O					Insects, earthworms, fish, mice, garbage, seeds	A F/B
Bonaparte's Gull			U	U	U			Small fish and large invertebrates, including insects. Does not eat garbage or carrion	A F/B
Ring-billed Gull	C		C	C	C			Fish, insects, earthworms, rodents, grain, and garbage known to eat dates, cherries, blueberries, and strawberries	A F/B
Herring Gull	C		U	C	C			Marine and terrestrial invertebrates, fish, insects, smaller seabirds, and even on adults, young, and eggs of other gulls	A F/B

SPECIES	SEASON					BEHAVIORS			HABITAT
	Sp	S	F	W		Breeding	Roosting	Foraging	
Gull-billed Tern	O	O	O	U	U			Fish, insects, lizards, aquatic animals, occasionally chicks of other birds	A F-/B
Caspian Tern	U	U	U	U	U			Almost entirely fish; occasionally crayfish and insects	A F-/B
Royal Tern	C	C	C	C	C			Fish and shrimp	A F-/B
Sandwich Tern		O						Small fish. Some invertebrates	A F-/B
Common Tern	O		O	R	R			Small fish. Some invertebrates	A F/B
Forster's Tern	C	C	C	C	C			Small fish and arthropods	A F/B
Least Tern	A	A						Small fish. Some invertebrates	A F/B
Black Tern	C		C					Eats insects	A F/B-
Black Skimmer	C	C	R	R	R			Small fish	A F-/B
Rock Dove			R					Seeds, fruits, rarely invertebrates, food left by people.	U V
White-winged Dove			R					Eats mostly grains and other agricultural crops like wheat, sunflower, milo, corn, and safflower. It also eats fruits and large seeds like spurge, panic grass, bristlegrass, Mexican jumping beans, Chinese tallow, leatherweed, saguaro, lime prickly-ash, brasil, privet, pigeonberry, and ocotillo	U V

SPECIES	SEASON					BEHAVIORS			HABITAT
	Sp	S	F	W		Breeding	Roosting	Foraging	
Mourning Dove	U	U	U	U		U		Seeds make up majority of diet, including cultivated grains and even peanuts, as well as wild grasses, weeds, herbs, and occasionally berries.	U V
Common Ground-Dove			R					Eats small seeds from wild grasses and weeds also feed on small berries and insects.	U V
Black-billed Cuckoo	U	R						Eat large insects such as caterpillars, katydids, cicadas, grasshoppers and large caterpillars, occasionally eat eggs of other birds. On their wintering grounds they also eat fruit and seeds	U V
Yellow-billed Cuckoo	U	O						Large insects, caterpillars, some fruits and seeds	U V
Groove-billed Ani	R		R	R		R		Insects and other arthropods	U V
Barn Owl	U	U	U	U		U		Eats small mammals, particularly rats, mice, voles, lemmings, and other rodents; also shrews, bats, and rabbits, occasionally eat birds such as starlings, blackbirds, and meadowlarks	U V

SPECIES	SEASON					BEHAVIORS			HABITAT
	Sp	S	F	W		Breeding	Roosting	Foraging	
Eastern Screech-Owl	R	R	R	R				Eat most kinds of small animals, including birds and mammals as well as surprisingly large numbers of invertebrates, including earthworms, insects, crayfish, tadpoles, frogs, and lizards. They eat many kinds of mammals, including rats, mice, squirrels, moles, and rabbits. Small birds taken as prey include flycatchers, swallows, thrushes, waxwings, and finches, as well as larger species such as jays, grouse, doves, shorebirds, and woodpeckers, occasionally prey on bats, and can rarely even be cannibalistic	U V
Great Horned Owl	U	U	U	U				Eat mostly mammals especially rabbits, hares, mice, voles, moles, shrews, rats, gophers, chipmunks, squirrels, woodchucks, marmots, prairie dogs, bats, skunks, house cats, porcupines and birds species including, ducks, loons, mergansers, grebes, rails, owls, hawks, crows, ravens, doves, starlings and American Coots. They supplement their diet with reptiles, insects, fish, invertebrates, and sometimes carrion	U V

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Barred Owl	U	U	U	U	U		Eats small animals, including squirrels, chipmunks, mice, voles, rabbits, birds (up to the size of grouse), amphibians, reptiles, and invertebrates. They perch over water and drop down to catch fish, or even wade in shallow water in pursuit of fish and crayfish.	U V
Short-eared Owl			U	U	U		Small mammals; sometimes birds	U V
Common Nighthawk	C	C					Eats insects	U V
							Eat mainly moths, beetles—including June beetles, scarabs, longhorned beetles, and click beetles—and dragonflies sometimes eating birds such as Hooded, Palm, Yellow, and Cape May Warblers, Common Yellowthroat, Swamp Sparrow, Carolina Wren, Cuban Emerald (a hummingbird), as well as bats	U V
Chuck-will's-widow	O		O					
Whip-poor-will	U		U				Eats insects, including moths, scarab beetles, click beetles, long-horned grasshoppers, stoneflies, ground beetles, carrion beetles, tiger moths, ants, bees, wasps, fireflies, long-horned beetles, measuringworm moths, owl moths, weevils, and scavenger beetles.	U V

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Chimney Swift	R		R				Eats insects. Feeding on the wing, they capture flies, bugs, bees, wasps, ants, mayflies, stoneflies, beetles, caddisflies, fleas, crane flies, and other insects	U V
							Feeds on the nectar of red or orange tubular flowers such as trumpet creeper, cardinal flower, honeysuckle, jewelweed, bee-balm, red buckeye and red morning glory, as well as at hummingbird feeders and, sometimes, tree sap. Catch insects in midair or pull them out of spider webs. Main insect prey includes mosquitoes, gnats, fruit flies, and small bees; also eats spiders, sometimes take insects attracted to sap wells or picks small caterpillars and aphids from leaves	U V
Ruby-throated Hummingbird	U		U				Feeds mostly on fish and crayfish, other crustaceans, mollusks, insects, amphibians, reptiles, young birds, small mammals, and even berries	A F/B
Belted Kingfisher	C	U	C	U	U		Eats mainly insects, especially ants and beetles also eat fruits and seeds	U For V
Northern Flicker	U			U	U		Eats sap as a main food source also eats insects (mostly ants) and spiders	U For V
Yellow-bellied Sapsucker	O		U	U	U			

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Olive-sided Flycatcher	R		U				Eats flying insects, especially bees	U For V
Yellow-bellied Flycatcher	U		U				Eats insects and arthropods. Occasionally takes fruit	U For V
Acadian Flycatcher	U		U				Eats insects, insect larvae, and other arthropods	U For V
Willow Flycatcher	O		R				Eats mostly insects, some berries	A V
Least Flycatcher	R						Eats mostly insects, some fruits	U For V
Eastern Wood Pewee	U		U				Eats flying insects	U For V
							Eats flying insects include wasps, beetles, dragonflies, butterflies and moths, flies, midges, and cicadas; they also eat spiders, ticks, and millipedes, as well as occasional small fruits or seeds	U For V A
Eastern Phoebe			C	O	O			
Vermilion Flycatcher	R		R				Eats insects and other arthropods	U V
Great Crested Flycatcher	U		U				Eats insects other invertebrates, some small fruits	U For V
Western Kingbird	O		O				Eats insects including bees and wasps, grasshoppers and crickets, beetles, moths and butterflies, caterpillars, flies, bugs, and spiders and may eat fruits of elderberry, hawthorn, Texas mulberry, woodbine	U V



SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Eastern Kingbird	C	U	C				Eats insects including bees, wasps, ants, beetles, crickets, grasshoppers, locusts, bugs, and flies may eat fruits including mulberries, serviceberries, cherries, blackberries, elderberries, and nightshade	U V A
Scissor-tailed Flycatcher	O	U	O				Eats insects including particularly grasshoppers, crickets and beetles and may eat fruits	U V
Horned Lark	O	U	O	O	O		Eats seeds, some insects	U V A
Purple Martin	U	U					Eats beetles, flies, dragonflies, damselflies, leafhoppers, grasshoppers, crickets, butterflies, moths, wasps, bees, caddisflies, spiders, cicadas, termites, and mayflies	U V
Tree Swallow	A		A				Eats dragonflies, damselflies, flies, mayflies, caddisflies, true bugs, sawflies, bees, ants, wasps, beetles, stoneflies, butterflies, and moths, as well as spiders, mollusks, and roundworms	U V A
Northern Rough-winged Swallow	A		A				Eats flying insects	U V A
Bank Swallow	C		C				Eats flying insects bees, wasps, ants, butterflies or moths	U V A

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Cliff Swallow	C		C				Eats flying insects (particularly swarming species), including bugs, flies, bees, wasp, ants, beetles, lacewings, mayflies, butterflies, moths, grasshoppers, crickets, dragonflies, and damselflies	U V A
Barn Swallow	A		A				Eats flying insects. Flies make up the majority of the diet, along with beetles, bees, wasps, ants, butterflies, moths	U V A-
Blue Jay			U				Insects, nuts, seeds also grains. They also take dead and injured small vertebrates, raid nests for eggs and nestlings, and sometimes pick up dead or dying adult birds	U V
American Crow				R	R		Grains, seeds, nuts, fruits, berries, insects, fish, young turtles, crayfish, mussels, and clams and many kinds of small animals such as earthworms and mice. Eats eggs and nestlings of many bird species and carrion and garbage	U V For

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Fish Crow					R	R	Grains, seeds, nuts, fruits, berries, insects, fish, young turtles, crayfish, mussels, and clams and many kinds of small animals such as earthworms and mice. Eats eggs and nestlings of many bird species and carrion and garbage	V, A For-
Carolina Wren	O	O	O	R	R		Insects and spiders, caterpillars, moths, stick bugs, leafhoppers, beetles, grasshoppers, crickets, and cockroaches, lizards, frogs, or snakes. Some fruit pulp and seeds from bayberry tree	U V For-A-
House Wren			U				Insects, spiders, beetles, caterpillars, earwigs, daddy longlegs, flies, leafhoppers, and springtails. Also eats snail shells	U For
Winter Wren			R	R	R		Invertebrates, including insects, insect larvae, millipedes, spiders	For
Sedge Wren	A		A	A	A		Insects and spiders	U V
Marsh Wren	U	U	U	U	U		Insects and spiders	V A F

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Golden-crowned Kinglet	R		O	R	R		Eat mainly insects, soft-bodied arthropods and their eggs from branch tips, under bark, and in tufts of conifer needles. The diet includes springtails, grasshoppers, crickets, lice, bugs, lacewings, beetles, caddis flies, moths, butterflies, flies, bees, wasps, spiders, mites, and some mollusks. In winter the kinglets also eat small amounts of seeds and may forage in brush piles and understory trees	U V For
Ruby-crowned Kinglet			U	O	O		Spiders, pseudoscorpions, and many types of insects, including aphids, wasps, ants, and bark beetles also eat a small amount of seeds and fruit, from poison-oak berries to the pulp of dogwood berries	U V For
Blue-gray Gnatcatcher	C		U	U	U		Small insects and spiders	U V For
Veery	O		O				Insects and other arthropods, fruit	U V For
Gray-cheeked Thrush	U		U				Insects and other arthropods, fruit	U V For
Swainson's Thrush	U		U				Berries and insects	U V For
Hermit Thrush			O	O	O		Insects such as beetles, caterpillars, bees, ants, wasps, flies, amphibians, reptiles, fruit, including wild berries	U V For A-

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Wood Thrush	U		U				Invertebrates, including adult beetles and flies, caterpillars, spiders, millipedes, woodlice, and ants. Insects, snails, and salamanders found in trees are occasional prey. Fruits like spicebush, fox grape, blueberry, holly, elderberry, jack-in-the-pulpit, Virginia creeper, pokeweed, dogwood, black cherry, and black gum make up most of the rest of their diet	U V For
American Robin	O	O	O	O	O		Invertebrates and fruit including chokecherries, hawthorn, dogwood, and sumac fruits, and juniper berries, earthworms as well as insects and some snails, shrews, small snakes, and aquatic insects	U V
Gray Catbird	U		U				Insects including ants, beetles, grasshoppers, midges, caterpillars, and moths. Fruits including holly berries, cherries, elderberries, poison ivy, greenbrier, bay, blackberries, raspberries, cherries, grapes, and strawberries	U V For-

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Northern Mockingbird	U	U	U				Insects including beetles, earthworms, moths, butterflies, ants, bees, wasps, grasshoppers, and sometimes small lizards. They eat a wide variety of berries, including from ornamental bushes, as well as fruits from multiflora rose	U V
American Pipit	U		O	O	O		Insects and seeds	V A F B-
Sprague's Pipit			R	R	R		Mostly insects and spiders, as well as some seeds.	U V
Loggerhead Shrike	C	U	C	C	C		Insects, amphibians, small reptiles, small mammals, and birds	U V
European Starling	C	U	C	C	C		Invertebrates including grasshoppers, beetles, flies, caterpillars, snails, earthworms, millipedes, and spiders will eat fruits including wild and cultivated cherries, holly berries, hackberries, mulberries, tupelo, Virginia creeper, sumac, and blackberries; as well as grains, seeds, nectar, livestock feed, and garbage	U V
White-eyed Vireo	U	R	U	R	R		Insects, some fruit	U V
Solitary Vireo			O	O	O		Insects, some fruit in winter	U V
Yellow-throated Vireo	U		U				Arthropods, some fruits and seeds	U V

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Warbling Vireo	R						Insects (such as caterpillars) and fruits	U V
Philadelphia Vireo	O						Insects and some fruit	U V For
Red-eyed Vireo	U	U					Insects, especially caterpillars, and small fruits	U V For
Blue-winged Warbler	O						Insects and spiders	U V
Golden-winged Warbler	R						Insects including caterpillars, Leafroller caterpillars, moths, and spiders	U V A-
Tennessee Warbler	O	O					Invertebrates, especially moth caterpillars, fruit, and nectar	For
Orange-crowned Warbler		U	O	O	O		Insects and spiders	U V For
Nashville Warbler	U	U					Insects and insect larvae	U V For
Northern Parula	C	C	C				Insects including caterpillars, beetles, moths, ants, wasps, bees, flies, locusts, and spiders. Occasionally eats bud scales and berries, seeds, or nectar	U V For A-
Yellow Warbler	C	C	C				Insects including midges, caterpillars, beetles, leafhoppers and other bugs, and wasps	U V For A-
Chestnut-sided Warbler	U	O					Insects and other arthropods, occasionally fruit	U For
Magnolia Warbler	U	U					Insect larvae, adult insects, and spiders	U For
Cape May Warbler	U	U					Insects, especially spruce budworms and nectar	U For

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Yellow-rumped Warbler				C	C		Insects including caterpillars and other larvae, leaf beetles, bark beetles, weevils, ants, scale insects, aphids, grasshoppers, caddisflies, crane flies, and gnats, as well as spiders. Eat fruits, bayberry and wax myrtle, juniper berries, poison ivy, poison oak, greenbrier, grapes, Virginia creeper, and dogwood	U For
Black-throated Green Warbler	U		U				Insects and insect larvae	U For
Blackburnian Warbler	O						Insects and spiders	U For
Yellow-throated Warbler	U		U				Insects and spiders	U For
Prairie Warbler				R	R		Insects and spiders and other small invertebrates.	U V
Palm Warbler	R			R	R		Insects; some seeds and fruits	A V
Bay-breasted Warbler	U						Insects, spiders and fruits	For
Cerulean Warbler	U						Insects, with some plant material	For
Black-and-white Warbler	U	O	U				Caterpillars, adult insects, and spiders	For
American Redstart	U		U				Insects, some small fruits	U For
Prothonotary Warbler	U		U				Butterflies, moths, flies, beetles, mayflies, and spiders, mollusks, seeds, fruit, or nectar	V For A-



SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Worm-eating Warbler	U						Arthropods, spiders, slugs, and especially caterpillars	For
Swainson's Warbler	R		R				Insects and spiders	For
Ovenbird	U		U				Insects and other invertebrates including beetles and larvae, ants, caterpillars, and flies	For
Northern Waterthrush	O		O				Insects, arthropods, snails, and occasionally small fish	For A-
Louisiana Waterthrush	U		U				Insects, arthropods, earthworms, and occasionally small frogs and fish	V For A-
Kentucky Warbler	U						Insects	For
Mourning Warbler	R						Insects, insect larvae, and spiders during the breeding season	V For A-
Common Yellowthroat	C	U	C	C	C		Insects and spiders, bugs, flies, beetles, ants, termites, bees, wasps, grasshoppers, dragonflies, damselflies, moths, butterflies, caterpillars, and other larvae	U V A-
Hooded Warbler	U						Insects	For
Wilson's Warbler	U		U	R	R		Insects and occasional berries	U V
Canada Warbler	U		U				Insects	For
Yellow-breasted Chat	U		U				Small invertebrates, fruits	U V
Summer Tanager	U		U				Insects, especially bees, wasps, fruit	For

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Scarlet Tanager	U						Insects along with some fruit and tender buds	U V
Northern Cardinal	O		O				Insects, insect larvae, and spiders during the breeding season	U V
Rose-breasted Grosbeak	U		U				Insects, fruit, seeds, berries, invertebrates and plant material	For
Blue Grosbeak				R	R		Insects, other invertebrates, and seeds	U V For-
Indigo Bunting	U		U				Seeds, thistles, dandelions, goldenrods, and grain such as oats, berries, blueberries, strawberries, blackberries, serviceberries, and elderberries buds, and insects including caterpillars, grasshoppers, aphids, cicadas and beetles such as canker worms, click beetles, and weevils	U V
Painted Bunting	C		C				Seeds of bristle grass, pigweed, wood sorrel, spurge, panic grass, St. John's wort, sedge, dock, pine, rose, wheat, or fig. They may fly up to grab a plant stem and drag it to the ground, holding it in place with one foot while eating the seeds insects including grasshoppers, weevils and other beetles, caterpillars, bugs, spiders, snails, wasps, and flies	U V

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Dickcissel	U	U	O				Seeds and insects	U V
Chipping Sparrow				U	U		Seeds, grasses, herbs, insects, small fruits.	U V
Field Sparrow			O				Insect and small seeds	U V
Vesper Sparrow				R	R		Seeds of grasses, weeds, and grain crops; also insects	U V
Lark Sparrow	U		U				Insects and seeds	U V
							Insects beetles, grasshoppers, and other bugs, as well as spiders, millipedes, and pillbugs, and spiders and seeds from grasses and forbs and tiny crustaceans	U V
Savannah Sparrow	O		O					U V
Grasshopper Sparrow	A	A	A	A	A		Mostly insects, especially grasshoppers	U V
Henslow's Sparrow				R	R		Insects, mostly grasshoppers and beetles	U V
Le Conte's Sparrow				R	R		Seeds and insects	U V
Sharp-tailed Sparrow	U			U	U		Insects, spiders, snails, and seeds	V A F B
Seaside Sparrow	C	C	C	C	C		Seeds, insects, spiders, marine invertebrates	V A F B

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Song Sparrow	A	A	A	A	A		Seeds, fruits, weevils, leaf beetles, ground beetles, caterpillars, dragonflies, grasshoppers, midges, crane flies, spiders, snails, and earthworms. Plant foods include buckwheat, ragweed, clover, sunflower, wheat, rice, blackberries, blueberries, strawberries, raspberries, mulberries, and wild cherries	U V A B-
Lincoln's Sparrow	U		U	O	O		Arthropods including spiders and larvae and adult beetles, flies, butterflies, mayflies, and leafhoppers and small seeds	U V A F
Swamp Sparrow	U		U	U	U		Seeds, fruits, and aquatic invertebrates	U V A F
White-throated Sparrow	C		C	C	C		Seeds of grasses and weeds, including ragweed and buckwheat, as well as fruits of sumac, grape, cranberry, mountain ash, rose, blueberry, blackberry, and dogwood, insects including dragonflies, wasps, stinkbugs, beetles, flies, and caterpillars, as well as spiders, millipedes, centipedes, and snails	U V For

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
White-crowned Sparrow			U	U	U		Seeds of weeds and grasses and insects such as caterpillars, wasps, beetles, and eat grains such as oats, wheat, barley, and corn, and fruit including elderberries and blackberries	U V
Harris' Sparrow			U				Seeds, fruits, arthropods, and young conifer needles.	U V For-
Dark-eyed Junco			R				Seed-eaters, with seeds of chickweed, buckwheat, lamb's quarters, sorrel, and insects including beetles, moths, butterflies, caterpillars, ants, wasps, and flies	For
Red-winged Blackbird				O	O		Insects, weedy seeds ragweed and cocklebur as well as native sunflowers and waste grains, including corn and wheat, in the winter	U V A F B
Eastern Meadowlark	R						Insects, including crickets, grasshoppers, caterpillars, and grubs also eat weed seeds, spilled corn, and wild fruits	U V
Western Meadowlark	A	A	A	A	A		Grain and weed seeds along with insects including beetles, ants, cutworms, grasshoppers, and crickets	U V

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Yellow-headed Blackbird	A	A	A	A	A		Insects including beetles, grasshoppers, dragonflies, caterpillars, flies, ants, and spiders. Eat grains and weed seeds	U V A F
Rusty Blackbird	O		O	O	O		Insects, acorns, pine seeds, and fruit	U V A F
Brewer's Blackbird	R		R				Seeds, grains and insects	U V
Great-tailed Grackle				R	R		Grains such as corn, sorghum, and oats, insects includes grasshoppers, beetles, spiders, bees, wasps, snails, worms, slugs, and moths, tadpoles, frogs, lizards, snakes, fish, and small mammals such as mice and shrews, as well as bird eggs and nestlings	U V A F
Boat-tailed Grackle				C	C		Eat arthropods, crustaceans, mollusks, frogs, turtles, lizards, grain, seeds, fruit, and tubers and often dunk foods like bread, rice, and dog food in water before eating them	U V A F

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Common Grackle	C	C	C	C	C		Seeds, particularly agricultural grains such as corn and rice. Other seeds include sunflower seeds, acorns, tree seeds such as sweetgum, wild and cultivated fruits, and garbage, insects including beetles, grasshoppers, caterpillars, spiders, crustaceans, mollusks, fish, frogs, salamanders, mice, and other birds	U V
Brown-headed Cowbird	A	A	A	A	A		Seeds from grasses and weeds, with some crop grains, insects including grasshoppers and beetles	U V
Orchard Oriole			U	C	C		Insects including parasitic wasps, ants, bugs, caterpillars, grasshoppers, crickets, beetles, mayflies, and spiders and other arthropods, along with some fruit and nectar	U V A-
Northern Oriole	C	U	C	C	C		Insects, wasps, ants, bugs, caterpillars, grasshoppers, crickets, beetles, mayflies, and spiders and arthropods, along with some fruit and nectar	U V A F

SPECIES	SEASON				BEHAVIORS			HABITAT
	Sp	S	F	W	Breeding	Roosting	Foraging	
Purple Finch	C		C				Seeds of coniferous trees and elms, tulip poplars, maples, and others, berries and fruit, including blackberries, honeysuckle, poison ivy, crabapples, juniper berries, cherries, and apricots some insects, including aphids, caterpillars, grasshoppers, and beetles	U V For
American Goldfinch	U		U				Seeds including sunflowers, thistle, asters, grasses, and trees such as alder, birch, western red cedar, and elm	U V A
House Sparrow				R	R		Mostly grains and seeds, as well as livestock feed - corn, oats, wheat, and sorghum. Wild foods include ragweed, crabgrass and other grasses, and buckwheat	U V